

REMARKS

Claims 103-123 are pending in this application. Claims 116-120 were allowed. Claims 118-120 were objected to. Claims 103-115 and 121-123 were rejected.

Allowed Claims

Applicants thank the Examiner for allowing claims 116 and 117.

Claims Objected To

Claims 118-120 were objected to as being of improper dependent form for failing to further limit the subject matter of a previous claim because claims 118-120 depend from canceled base claim 15. Applicants have amended claims 118-120 to depend from claim 117.

Claim Rejections under 35 U.S.C. § 103

Claims 103-115 and 121-123 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 6,768,913 to Molnar et al. (hereinafter "Molnar) in view of U.S. Patent 6,023,607 to Siira (hereinafter "Siira"). This rejection is respectfully traversed.

To establish a prima facie case of obviousness, the prior art reference (or references when combined) must teach or suggest all the claim limitations. "The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in Applicants' disclosure." In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Applicants respectfully submit that a prima facie case of obviousness has not been established regarding claims 103-115 and 121-123 because the prior art cited does not teach or suggest all the claim limitations. Specifically, the cited prior art does not disclose or suggest the limitation "receiving and tracking a first signal using the first beam" as found in Applicants' invention.

Molnar discloses a method and apparatus for performing beam searching in a radio communications system. (Title) A base station uses a fixed beam phased array antenna which employs a first set and beams and associated hardware for conducting

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communication with a set of mobile terminals within a radio communications network, and employs a second set of beam and associated hardware for searching the radio communication cell for the presence of candidate beams which should be added to the first set of beams. (Col. 3, lines 45-53) The antenna may also be an adaptive phased array antenna. (Col. 4, line 32) The use of an adaptive beamforming processor allows the base station to selectively direct only the required number of beams toward the target terminals. (Col. 11, lines 44-46) Only one searcher beam is used, or at least a smaller subset of searcher beams is used. The single searcher beam is steered over a range of orientations. At each orientation, the base station measures the signal strength and/or quality of the searcher beam and from this information determines whether that orientation should be allocated a decoder beam. (Col. 11, lines 50-58) The decoder beams do not track the mobile station, rather, the mobile station moves from beam to beam. (Fig. 7).

Molnar does not disclose all the elements of Applicants' invention. Specifically, Molnar does not teach "receiving a first signal from the second station while searching for one or more additional signals using the one or more search beams". In the Final Office Action the Examiner also states that Molnar does not teach this limitation.

The Examiner states "Molnar fails to teach receiving a first signal from second station while for one or more additional signals using the one or more search beams. Siira teaches receiving a first signal from second station while for one or more additional signals using the one or more search beams (figure 1-3 and theirs description)." Applicants respectfully submit that Siira does not teach or suggest "receiving a first signal from the second station while searching for one or more additional signals using the one or more search beams" for the reasons given below.

Siira teaches a radio system and a call setup method. (Title) The invention relates to a radio system where oriented antenna beams are used over a radio connection between a network subsystem and a subscriber terminal with a fixed location. (Abstract) Users that own a subscriber terminal with a fixed location, such as a private house, may set up a connection with some other user via a network subsystem. (Col. 2, lines 28-31) An oriented antenna beam of the subscriber terminal of the first user does not interfere with on oriented antenna beam of a second user's subscriber terminal. The idea is that antenna

beam orientation is used instead of or in addition to a normal omnidirectional antenna or a cell sectorized into three parts. (Col. 2, lines 33-39) The subscriber terminal may also utilize an oriented antenna beam in its own transmission. (Col. 2, lines 51-52) A base station is connected to the public switched telephone network via channel codecs. (Col. 2, lines 65-66) An array of transmit and receive beam formers are connected to the channel codecs. (Col. 3, lines 1-2) When a new user arrives at the system, a bidirectional test radio connection is first set up between the network subsystem and the subscriber terminal. (Col. 3, lines 26-30) The common measuring unit then measures the parameters of the test connection. (Col. 3, lines 30-32) The air interface channel profile means that a fixed number that always remains the same can be measured for the timing between transmission and reception, since the subscriber station does not move. (Col. 3, lines 35-39) The network subsystem is arranged to utilize the parameters of the bidirectional radio connection stored in the network subsystem when a bidirectional radio connection is set up between the network subsystem and a subscriber terminal. (Col. 3, line 64- Col. 4, line 1).

Applicants submit that Siira also does not teach or disclose "receiving a first signal from the second station while searching for one or more additional signals using the one or more search beams" because Siira does not perform any searching for signals. Siira teaches or suggests oriented antenna beams, not actively searching for signals. There is no need to search for subscriber signals since the bidirectional radio test connection establishes a set of parameters that include antenna beam orientation angles. Siira teaches comparing received signals with a set of pre-determined antenna beam angles and using the pre-determined information to set up a radio connection to a public switched telephone network. In addition, Applicants note that the Examiner has provided no specific citation. The Examiner cites Figures 1-3 and their descriptions, which constitute all the figures in the application and all of the detailed description. Applicants submit that Siira does not teach or suggest the stated limitation.

Furthermore, Applicants submit that the references teach away from one another. As noted above, Siira teaches using oriented antenna beams and teaches away from using an omnidirectional antenna or a sectorized antenna. Molnar specifically states that

sectorized antennas may be used. (Col. 6, lines 3-4) while, Siira, as noted above, teaches away from using omnidirectional or sectorized antennas.

In addition, there is no motivation to combine the Molnar and Siira references. Molnar is specifically directed to mobile communications, while Siira is directed toward a radio system linking a fixed location subscriber terminal with the public switched telephone network. Combining Molnar and Siira would result in a system that utilizes the method of Molnar with the fixed subscriber stations of Siira. Under this combination, there would be no need for any searching beams since the subscriber stations would not move.

Claims 104-107 are each allowable as depending directly from an allowable independent claim.

Claim 108 is allowable as depending directly from an allowable independent claim. In addition, claim 108 is allowable because the cited prior art does not disclose the additional limitation "wherein at least one search beam becomes the tracking beam after receiving the first signal from the second station". The Examiner states that Fig. 3 of Siira teaches this limitation. (Final Office Action, p 3) Fig.3 illustrates the method steps of the Siira reference and reads as follows:

Step 300: It is first checked whether the user is new, i.e. whether the user sets up a radio connection to the network subsystem or vice versa for the first time, or whether the user has already had a radio connection, in which case the parameters are already stored.

Step 302: The user is new, wherefore a bidirectional test radio connection is set up.

Step 304: The parameters of the test radio connection are measured.

Step 306: The measured parameters are stored.

Step 308: The user is not new and therefore the stored user parameters are retrieved.

Step 310: A bidirectional radio connection is set up by means of the stored parameters.

Applicants respectfully submit that the cited reference does not teach the cited limitation and therefore, claim 108 is allowable.

Claim 109 is allowable as depending directly from allowable independent claim 1.

Claim 110 is allowable for the same reasons given above for claim 103.

Claim 111 is allowable as depending directly from an allowable independent claim.

Claim 112 is allowable as depending directly from an allowable independent claim.

Claim 113 is allowable as depending directly from an allowable independent claim.

Claim 114 is allowable as depending directly from an allowable independent claim.

Claim 115 is allowable as depending directly from an allowable independent claim.

Claim 121 is allowable for the same reasons given above for claim 103.

Claim 122 is allowable for the same reasons given above for claim 103.

Claim 123 is allowable for the same reasons given above for claim 103.

REQUEST FOR ALLOWANCE

In view of the foregoing, Applicants respectfully submit that all pending claims in the present invention are in a condition for allowance, which is earnestly solicited. Should any issues remain unresolved, the Examiner is encouraged to telephone the undersigned at the number provided below.

Respectfully submitted,

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